

CLAIMS

I claim:

1. An eye fixation apparatus, comprising:

an eye fixation portion, wherein the eye fixation portion has an annular
5 convex bottom contact portion, which goes upon the surface of an eyeball and
encircles the cornea, and wherein the contact portion is provided with criss-
crossing channels; and

a vacuum port connected to said eye fixation portion and in
communication with said criss-crossing channels such that vacuum pressure
10 applied to said vacuum port exerts vacuum pressure through such criss-
crossing channels to pull the eyeball membrane to the criss-crossing channels.

2. The eye fixation apparatus of claim 1, further comprising adjustment arms
connected to said eye fixation portion.

3. An eye fixation apparatus of claims 1 or 2, further comprising a first annular
15 translation guide member adjustably connected to the eye fixation portion, wherein
the first translation guide member portion can translate laterally in relation to the eye
fixation portion.

4. The apparatus of claims 3, wherein the first translation guide member is
provided with a first translation rod and a first adjustment knob for translating the first
20 translation guide member.

5. The apparatus of claims 3, further comprising a docking screw screwed
through the first translation guide member for tightening the first translation guide

member against objects inserted into the cylindrical space formed by the first annular translation guide member.

6. The apparatus of claims 4, further comprising a docking screw screwed through the first translation guide member for tightening the first translation guide member against objects inserted into the cylindrical space formed by the first annular translation guide member.

7. The apparatus of claims 4, further comprising a second translation guide member adjustably connected to the first translation guide member, wherein the second translation guide member can translate laterally in relation to the first translation guide member in a direction not parallel to the translation of the first translation guide member.

8. The apparatus of claims 7, wherein the second translation guide member is provided with a second translation rod and an adjustment knob for adjusting the second translation guide member.

9. The apparatus of claims 7, further comprising a docking screw screwed through the second translation guide member for tightening the second translation guide member against objects inserted into the cylindrical space formed by the annular second translation guide member.

10. The apparatus of claims 8, further comprising a docking screw screwed through the second translation guide member for tightening the second translation guide member against objects inserted into the cylindrical space formed by the annular second translation guide member.

11. A method of fixating an eye cornea for surgery, comprising:

placing an eye fixation apparatus upon the eye globe conjunctiva around the cornea, wherein the eye fixation apparatus comprises an eye fixation portion with an annular convex bottom contact portion provided with criss-crossing channels, and a vacuum port connected to said eye fixation portion and in communication with said criss-crossing channels such that vacuum pressure applied to said vacuum port exerts vacuum pressure through such criss-crossing channels to pull the eyeball membrane to the criss-crossing channels; and

applying vacuum pressure to said vacuum port creating a pressure differential through said criss-crossing channels in relation to said conjunctiva, adhering said conjunctiva to said contact portion.

12. The method of claims 11, further comprising:

checking to see said eye fixation apparatus is centered around the cornea; and

shutting off the vacuum pressure if said eye fixation apparatus is not centered around the cornea, recentering said eye fixation apparatus, and reapplying said vacuum pressure.

13. The method of claims 11 or 12, wherein the eye fixation apparatus is further provided with adjustment arms connected to said eye fixation portion.

14. The method of claims 11 or 12, wherein the eye fixation apparatus further comprising a first annular translation guide member adjustably connected to the eye fixation portion, wherein the first translation guide member portion can translate laterally in relation to the eye fixation portion.

15 The method of claims 14, wherein the first translation guide member is provided with a first translation rod and a first adjustment knob for translating the first translation guide member.

16 The method of claims 13, wherein the eye fixation apparatus is further provided
5 with a docking screw screwed through the first translation guide member for tightening the first translation guide member against objects inserted into the cylindrical space formed by the first annular translation guide member.

17. The method of claims 14, wherein the eye fixation apparatus is further provided with a docking screw screwed through the first translation guide member for
10 tightening the first translation guide member against objects inserted into the cylindrical space formed by the first annular translation guide member.

18. The method of claims 14, wherein the eye fixation apparatus is further provided with a second translation guide member adjustably connected to the first translation guide member, wherein the second translation guide member can translate laterally in
15 relation to the first translation guide member in a direction not parallel to the translation of the first translation guide member.

19. The method of claims 18, wherein the second translation guide member is provided with a second translation rod and an adjustment knob for adjusting the second translation guide member.

20 20. The method of claims 18, wherein the eye fixation apparatus is further provided with a docking screw screwed through the second translation guide member for tightening the second translation guide member against objects inserted into the cylindrical space formed by the annular second translation guide member.

21. The method of claims 19, wherein the eye fixation apparatus is further provided with a docking screw screwed through the second translation guide member for tightening the second translation guide member against objects inserted into the cylindrical space formed by the annular second translation guide member.